

## ABSTRACT

A radiation detector assembly has a semiconductor detector array substrate of CdZnTe or CdTe, having a plurality of detector cell pads on a first surface thereof, the pads having a contact metallization and a solder barrier metallization. An interposer card has planar dimensions no larger than planar dimensions of the semiconductor detector array substrate, a plurality of interconnect pads on a first surface thereof, at least one readout semiconductor chip and at least one connector on a second surface thereof, each having planar dimensions no larger than the planar dimensions of the interposer card. Solder columns extend from contacts on the interposer first surface to the plurality of pads on the semiconductor detector array substrate first surface, the solder columns having at least one solder having a melting point or liquidus less than 120 degrees C. An encapsulant is disposed between the interposer circuit card first surface and the semiconductor detector array substrate first surface, encapsulating the solder columns, the encapsulant curing at a temperature no greater than 120 degrees C.